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THE QUANTITY THEORY.

For many decades the quantity theory of prices has dominated certain departments of economic thought. Since the days of Ricardo, at least, it has formed the basis of much of the reasoning of economists and practical men on monetary questions, and it has been a premise of reasoning in other fields of thought. At no time in its history has it enjoyed complete immunity from attack, but the voices of its opponents have neither penetrated far, nor produced very important scientific or practical results. Quite recently, however, evidences of dissatisfaction with this theory have multiplied. It has been seriously discussed in our periodicals, and at least two books* have been written in this country in which it has been definitely abandoned. Whatever these recent discussions may have accomplished in the direction of influencing public opinion they have clearly revealed the real basis of the theory. For instance, Miss Hardy and Mr. Schoenhof† have attempted to show that this theory is not in harmony with the facts of the history of money and prices, while President Walker‡ in reply has given such a statement to the theory as to make it impregnable to attacks by statisticians or historians, thus demonstrating that its real basis is theoretical, and that it is just as strong and just as weak as the reasoning upon which it is based. Neither President Walker, however, nor any one else has published the results of an inquiry into the nature and soundness of this reasoning. It is the purpose of this paper to supply, at least in part, this deficiency.

*Mr. Schoenhof's book mentioned below, and Mr. Horace White's book on "Money and Banking."

†The former in the *Chicago Journal of Political Economy*, and the latter in his book on "The History of Money and Prices."

‡See his article on "The Quantity Theory" in the *Quarterly Journal of Economics*, Vol. ix. President Walker's statement of the theory is discussed later on in this paper.

In its present form the quantity theory is the result of a long process of evolution. The germ of it may be found in statements frequently made by sixteenth century writers to the effect that all the commodities of a society and all its money are exactly equal in value, consequently that the value of a single piece of money is large or small according as the number of pieces be few or many.* A more accurate statement of the idea really involved early led to a limitation of the commodities meant to those which were actually objects of commerce, and of the money meant to that actually in circulation.† In this form the theory might be stated as follows: The goods which are bought and sold upon the markets are equal in value to the money in circulation on those markets, and the value of a single piece is as before a function of the number of pieces. Later on it was discovered that the rapidity of the circulation of the pieces of money, and the number of times commodities were exchanged must be taken into consideration, and the statement of the theory had to be modified accordingly.‡ The use of credit instruments and of government paper in various forms, as media of exchanges, forced other restatements of the theory in order to make it conform to facts, even in appearance. The ingenuity of not a few writers has been admirably displayed in more or less successful attempts to accomplish this task. Mr. J. Shield Nicholson § assumes a hypothetical market in which no exchanges are made without the actual passage of money from hand to hand, and in

* See Davanzati, "*Lezione sulla Moneta*," quoted in Roscher's "Political Economy," Lalor's translation, Vol. i, p. 367.

† See Montanari, "*Della Moneta*," pp. 45, 64; and Hume, "Essay on Money," quoted by Roscher, *op. cit.*

‡ The discoverer of this truth is supposed by many to be Bandini, "*Discorso economico*," 1737, p. 141. Berkely, however, in the *Querist*, 1735, p. 447, writes: "A sixpence twice paid is as good as a shilling once paid." Much earlier yet, in 1697, Boisguillebert, "*Détail de la France*," Vol. ii, p. 19, had the germ of this doctrine, but he confounds circulation with consumption. And Locke, "Considerations," Vol. ii, p. 13, presented it in 1691 with great clearness, although he did not always remain true to his theory. Compare Quesnay, ed. Daire, p. 64; Cantillon, pp. 159, 382. Roscher, *op. cit.*

§ "Money and Monetary Problems," 2d. ed., p. 56.

which no money is withheld from circulation for any reason. He then assumes ten traders each with one kind of commodity, each commodity equal in value to every other, and one trader with one hundred pieces of money. Under these circumstances each commodity will exchange for ten pieces of money, and each piece of money will be worth one-tenth of a commodity. Increase the pieces of money to one thousand, and prices will rise tenfold, and the value of the money unit will fall to one-tenth its former amount. The law revealed by this illustration clearly is that in the hypothetical market assumed prices rise or fall in proportion as the quantity of money increases or decreases, and the value of the money unit changes in inverse proportion. In actual markets, according to Mr. Nicholson, this law is in full force, but the results of its operation are more or less concealed by the accomplishment of large numbers of exchanges through barter and instruments of credit, by the hoarding of coin and its frequent melting down for use in the arts, by changes in the value of commodities with reference to each other, etc., etc.

President Walker has explained the theory as a particular case of the application of the law of supply and demand, and his ingenuity has given us definitions and descriptions of the demand and supply of money, so carefully worded and so skillfully guarded that a person would be captious indeed who would find fault with them. They seem to cover the ground, and to be entirely adequate for their purpose. The following quotation from one of President Walker's recent articles in defence of the quantity theory illustrates his thoroughness and carefulness in this matter:

"In the situation existing, the quantity of goods to be exchanged being such as it is, prices ruling as they have done, producers and consumers living at such distance from each other as may be the case, the habits of the people as to carrying and using money being what they are, the machinery of exchange being what it is, there is occasion for a certain exercise of the money-function in that community. . . . Shall we say that the demand for money is

determined merely by the amount of goods to be exchanged? No. Many of these goods may be conveniently exchanged directly against each other in barter, or indirectly through the intervention of commercial and financial credit without the use of money. Such goods do not constitute a factor in the demand for money. Even when we know the amount of goods which must be exchanged through the intervention of money, we have still to inquire how often each commodity may require to be thus exchanged. On the other hand, the supply of money is not determined solely in the number of money pieces of a certain denomination or denominations available to do the money work. We must also know the rapidity of circulation. . . . In a community possessing in a high degree the agencies of transportation and transfer—railroads, parcel express, post and telegraph—a given volume of money-pieces might conceivably do two or three times as much of the money work as in a community more backward in the respects indicated. To resume, the demand for money and the supply of money are both quantities of two dimensions.

“When the demand for and the supply of money are thus stated and explained, it is difficult to see how any economist can take exceptions to the proposition that, other conditions remaining the same, an increase in the quantity of money must raise prices, and a decrease in the quantity must lower prices.”*

It has also been suggested, in order to make the quantity theory fit the facts, that we substitute “total purchasing power” for money in the traditional formula. We would then be obliged to say that any increase or decrease in the total amount of purchasing power would proportionally raise or lower prices directly and the value of the unit of purchasing power inversely.†

It must be admitted, I think, that President Walker, Professor Nicholson and others have succeeded in stating the theory in such a way that it cannot be overthrown by an appeal to statistics. The rapidity of the circulation of money, the number of times each commodity has been or may be exchanged, the number of exchanges effected through barter and instruments of credit, the amount of money

* *Quarterly Journal of Economics*, Vol. ix, p. 373.

† Professor Taussig in “Silver Situation in the United States.” Total purchasing power is assumed to be measured by the aggregate of all sorts of instrumentalities of exchange.

actually in circulation at any particular time are elements in the problem which are indeterminable by any known methods. If investigations like those recently made by Mr. Schoenhof and Miss Hardy prove that prices frequently rise and fall and remain stationary under all conditions of money supply, and that, so far as such facts indicate, the relation of prices to the quantity of money is quite as often the reverse of what you would expect from the quantity theory as in harmony with it; the defenders of the theory can still reply that, if all these unknown elements had been properly estimated and their influence accounted for, the theory would have been found to be true. The only rejoinder which can be made to such a reply is an expression of doubt which will leave honest opponents of the same opinion still.

But can any friend of sound economic theory remain satisfied with such a defence of this theory, or with the theory itself, if this is the best defence that can be made for it?

The real essence of the theory seems to have escaped the attention of both friend and foe. At any rate it has not been brought forward in recent discussions, and in consequence the real point at issue has been obscured. What students of monetary problems really want to know is whether there actually exists the causal relation between the value of the money unit and the quantity of money which the advocates of the quantity theory allege. These theorists insist that with a given amount of money work to be done and a given rapidity of circulation the value of the money unit is an effect of which the number of pieces of money is the cause. Neither changes in the market value of the material from which money is made, nor any other event can effect this value *directly*, they say, but only *indirectly* by first increasing or decreasing the amount of money in circulation. As Ricardo puts it, "There can be no depreciation of coin but from excess." "Whilst such money is kept within certain limits, any value may be given to it as currency." Is this true? May it not be true that the

causal relation is the other way about; that the quantity of money in circulation is an effect of which the value of the commodities to be exchanged and the value of the money unit are causes? Or, is the connection between the volume of currency and prices so close a one that any quantitative relation can be established? These are the real questions at issue.

What are the grounds for believing that the causal relation is as the quantity theorists claim?

President Walker's answer is that the law of demand and supply proves it. No one, he says, has shown any good reason for making money an exception to this law, and he expresses the belief that no good reason can be given. In other words, his claim is that the law of supply and demand and the quantity theory stand and fall together. But is this true? Everything depends upon what one means by the phrases in question. Does the law of supply and demand, as it is ordinarily understood, help us to answer the questions which were propounded above? Does it prove that the quantity of money has the direct causal effect upon prices which the quantity theorists allege? In my opinion these questions must be answered emphatically in the negative.

The law of demand and supply is simply a method of describing the process through which the value-determining forces work. It is a short way of saying that when some people want to buy more goods at a certain price than other people are willing to sell at that price, some of the prospective buyers will bid higher; some of them will stop bidding; new sellers will very likely enter the market; old sellers will perhaps offer more goods for sale, etc., etc., and that this process of "higgling" will continue until a certain quantity of goods passes from the hands of certain sellers to those of certain buyers at some price. At what price the law does not and cannot say. As Thornton demonstrated long ago, the so-called equalization of demand and supply may be

accomplished at many different prices. To determine at about what price in the long run demand and supply will properly be adjusted to each other, we are obliged to resort to the principle of cost of production, and ultimately to that of marginal utility. The numerous forces comprehended under these terms work themselves out through the so-called law of demand and supply. An appeal to this law cannot, therefore, settle a dispute regarding the true source of the value of the money unit.

A further difficulty with President Walker's method of argument consists in the fact that the demand for money, or the amount of money needed, obviously depends in part upon prices. If six commodities, for example, each worth a dollar a piece, are exchanged once each simultaneously, six dollar-coins will be required to do the work. If they are worth five dollars each, under the same circumstances, thirty dollar-coins, or their equivalent, will be required. We thus meet the same old problem in another form. If we would explain the demand for money, we must explain prices, and President Walker is estopped from using the quantity theory for this purpose, for that is the very question at issue. One cannot use the law of demand and supply in support of the quantity theory and then use the quantity theory in explanation of the law of demand and supply.

John Locke* also regarded the quantity theory as a logical deduction from the law of demand and supply. He maintained that the demand for money was infinite; and consequently that the supply only needs to be considered in an explanation of prices or of the value of the money unit. According to Locke's notion there is no limit to the amount of money which people desire, but he did not explain how an infinite desire makes a finite demand; neither did he explain how an infinite demand with a finite supply could result in anything except an infinite price.

* "Considerations on the Lowering of the Rate of Interest."

Mr. Nicholson's reasons for believing the quantity theory are nowhere expressly stated, but they are implied in the hypothetical market which has already been described.* He there makes two important assumptions: Firstly, that the man with the money will give it all for the ten commodities he desires to possess; secondly, that the money can be used for no purpose except the making of exchanges. Are these assumptions valid? Granted the hypothesis that the money can be used for no purpose except that of exchanging goods, does it follow that all the money would needs be exchanged against all the goods, and does such an hypothesis assist us to understand the actual case in which money can be and is used for other purposes than the making of exchanges?

In order to answer the first question we must consider the motives of the exchangers. Why should the man who holds the dodo bones (the form of money used by Mr. Nicholson in his illustration) pay them all out for the commodities he desires, and why should the possessors of the commodities demand all the dodo bones in exchange? If we assume that they all understand the nature of the process in which they are engaged, and that they really follow out their own self-interest, it is difficult to see why the owners of commodities should demand or the owner of the dodo bones should offer the entire supply in exchange. What the owners of commodities really desire is not dodo bones, but other commodities which the dodo bones will buy. A few will do the work of exchanging a given quantity of their commodities for a given quantity of the commodities which they desire as well as many, and better, because a few are more easily handled than many. The owner of the dodo bones will not find it in his interest to offer a large quantity instead of a small because the latter will buy just as many goods for him and bring him just as much profit as the latter. If we assume that the exchangers do not understand what they are about,

*See above p. 41 *et. seq.*

we are all at sea. Whether under these circumstances all the money will be exchanged for all the commodities depends upon the success of the money holders in concealing from the holders of goods the amount of their money.

At first thought one might be tempted to believe that the existence of a money market supports Mr. Nicholson's contention that under the circumstances assumed all the money would be exchanged against all the goods. Dealers in money certainly gain nothing by hoarding their goods. It is only when they loan their funds that they make the profits which are the aim of their endeavors. By putting money out of their hands, instead of by keeping it do they get gain. But the desire of the money lenders to get rid of their money does not insure their power to get rid of it. That depends upon the willingness of people to borrow. The only encouragement which the lender can offer the borrower is a low rate of interest, but that inducement cannot succeed in the long run, unless there is a genuine demand for more goods to be consumed. The desire to borrow money is but another name for the desire for more capital for investment, and that desire in the long run must be based upon a demand for more goods for purposes of consumption. But the fact that more money may be brought into circulation on account of an increased demand for goods lends no support to the view that all the money will be put into circulation regardless of the quantity of commodities or of their demand for consumption; neither does it lend support to the quantity theory, unless to the mind of a person who is inclined to defend the proposition that the demand of the community for goods depends upon the quantity of money.

Is Mr. Nicholson's second hypothesis tenable? Has he a right to assume for the purpose of arguing this question, that any commodity could become standard money which is not useful for other purposes? In favor of such an assumption he might quote such authorities as Ricardo and Mill, and, indeed, all believers in the quantity theory; for if the

value of money is a function of its quantity, it is entirely independent of the value of the material from which coins are made and derived solely from its peculiar uses. It may be affirmed also with considerable plausibility, and possibly proved, that the demonstration of the proposition, that the value of standard coins is derived solely from their use for monetary purposes, would establish the truth of the quantity theory. It is surely difficult to see what, except the quantity of money in circulation, could determine the value of standard coins, if the value of the bullion from which they are made has nothing to do with it. Certain it is that by the proposition before us we may test the truth or falsity of the quantity theory. If it should chance to be true that the value of standard coins is, after all, practically identical with the value of the bullion of which they are composed, the quantity theory cannot stand, for the value of gold bullion does not depend upon the quantity of money in circulation, but upon the marginal utility of gold; and the marginal utility of gold, though influenced by its use for monetary purposes, is not solely dependent upon that use, or dependent upon it to such an extent that any one could affirm with even an approximation to accuracy that it was a function of the quantity of gold in circulation for monetary purposes.

It is impossible to trace back to its origin the notion that the value of standard coins is independent of the value of the bullion contained in them, but the evidence points to the conclusion that the notion originated in the failure of economists to clearly distinguish between the functions of a standard of values and that of a medium of exchange. At any rate we can best reach the truth regarding the proposition before us by a careful examination of the distinction between these two functions.

The necessity for a standard of values has been denied by President Walker, but we believe that Professor Jevons clearly demonstrated this necessity when he showed that

under conditions of pure barter a price-current would be required so cumbrous, expensive and imperfect as to render exchanges on any large scale practically impossible. Such a price-current, he showed, would needs contain an expression of the value of each commodity, bought and sold upon the markets, in terms of every other commodity. Now this particular difficulty of exchange by means of barter, the existence of which President Walker admits, can be avoided only by the acquisition of the habit of quoting the values of all commodities in terms of the same commodity. This becomes evident the moment one grasps the real nature of the difficulty. In a state of primitive barter each trader is familiar with a small number of exchange ratios, and he may express these upon occasion in any way he pleases. Very likely he may express them in terms of the particular commodity or service which is the object of his own special activity.

It would be mere chance if any large number of persons should express these ratios in terms of the same commodity or service, and it would certainly happen that in every community of any size several different methods of expressing exchange ratios would be in use. A merchant, therefore, who would make an intelligible price list would needs express the value of each commodity in terms either of every other commodity, or at least in terms of all commodities commonly used for the measurement of values in his neighborhood. It is equally clear that he could avoid this difficulty only when his customers had acquired the habit of expressing ratios of exchange in terms of some one commodity. The acquisition of this habit by a community is the acquisition of a standard of values. The commodity used for this purpose simply stands as one member in every expression of exchange ratios, and that service and that alone constitutes it a standard of values. One might object that the phrase "standard of values" does not properly describe such a service, but this objection would not alter in

the slightest degree the nature of this service or the necessity for it.*

Admitting, then, the necessity for a standard of values in the sense described, the problem before us resolves itself into the question—could a community acquire the habit of quoting or describing the values of commodities in terms of something which is valueless? To ask the question is to answer it. One surely is not called upon to prove that a ratio of exchange could not be established between a valuable good and a commodity without value. Neither is it necessary to do more than to call attention to the fact that the history of monetary standards shows that only commodities of very high degree of utility and value have served their respective communities as standards.

The opinion has already been expressed that the failure of many people to grasp the simple truth that a standard of values is necessary, and that it must be a commodity of high utility and value for purposes of consumption is due to a failure to distinguish clearly and accurately between the functions of a standard and that of a medium of exchange. It is proper, therefore, that we should devote some space to a description of the real nature and service of a medium of exchange.

To this end, however, no extended analysis is needed. Professor Jevons and many other writers have clearly pointed out the difficulties of barter. Even among people who had become accustomed to quote the values of commodities in terms of a standard want of "coincidence" and of "means of subdivision" in exchanges might constitute insuperable

* President Walker insists that only some means of expressing or denominating values are needed. The following are his words: "Articles are measured against each other in respect of their several values, and it is only necessary that there should be some common denominator in which the values, thus determined, may be expressed." "Money," p. 9. He does not carry his analysis far enough to reveal the fact that, until ratios of exchange have been established between all commodities and some one commodity, there is nothing to express or denominate. The establishment of some unit, such as a dollar, a franc, or a pound as the means of expressing or denominating values must follow the acquisition of a standard of values, but could not precede it, nor be a substitute for it.

obstacles to accurate and extensive business transactions. An early method of obviating these difficulties consisted in the making and denominating of coins fashioned out of the commodity which had become the standard of values. This was a most natural method of procedure. The commodity which had become the standard must have previously been an object of universal or nearly universal desire, and, on that account, more readily exchangeable than any other commodity. This being the case people naturally acquired the habit of frequently purchasing it for the purpose of hoarding, or for no other reason than because with it they could buy what they wanted more readily than with the article or articles they traded for it. When the standard commodity came to be used frequently and on a large scale, for this purpose, the need for putting it up in convenient and properly labelled packages must have speedily become apparent, and, wherever minerals constituted the standard, some method of coinage developed.

Other methods of securing "coincidence" and "means of subdivision" in exchanges, superior for many purposes to the one just described, have been discovered in modern times, and extensively employed. Instruments of credit,—such as banknotes, checks, drafts, bills of exchange, and many varieties of government paper, also book accounts,—are nowadays used for this purpose in all civilized countries. Coin is still circulated widely and in large quantities, but these other instrumentalities easily hold the supremacy as media of exchanges. It is possible, though by no means probable, that credit instruments may come to be exclusively used for currency purposes. In that case we should have a complete separation between the instrumentalities which serve in different countries as standards of value and those which serve as media of exchanges. Whether or not, however, such a separation ever takes place, the two functions will remain, as they ever have been, entirely distinct, and without any necessary connection each with the other. A

standard of values would be a useful thing even in a state of simple barter, and standards of more or less extended use have very likely existed in communities which lacked entirely a medium of exchange.

The fact that gold, which constitutes the standard of values in the most highly civilized nations of the world at the present time, is also used in large quantities as a medium of exchange involves important consequences, one of which is that its value is greater than it would be, if it were not so used, but it does not involve the consequence that its value as a standard is entirely or, necessarily even largely, determined by its use as a medium and, therefore, by the volume of the circulation. The use of gold as a standard does not affect its value in the slightest particular. It possessed high utility and great value before it ever became a standard, and it became a standard, and still remains such, largely because of its great value for purposes of ordinary consumption. Its use as a medium of exchange affects its value for the reason that, on this account, large quantities of it are withdrawn from its ordinary uses, and thus its marginal utility is raised. If less were used for this purpose more would be available for purposes of ordinary consumption, and its marginal utility would fall accordingly; if none were used for this purpose its marginal utility would fall to that point which the state of the need for gold for ordinary purposes of consumption, together with the supply, would determine. But it might perfectly well, even then, serve as a standard of values, and, as such, as one of the chief determinants of price.*

If this view of the matter be correct, the true relation between the volume of the currency and prices is very different from that implied in the quantity theory. We may indicate it by supposing two possible cases, one of which

*The study of the evolution and functions of standards of value has received slight attention from economists and historians. Some interesting suggestions on the subject may be found in Menger's "*Grundsätze der Volkswirtschaftslehre*," Cap. viii.

represents the actual situation at the present time. First, suppose that the currency consists solely of instruments of credit of various sorts, and that the only monetary use of gold is that of a standard of values; secondly, we will suppose—what is actually true at the present time—that the currency consists in part of gold and in part of instruments of credit, and that gold is also the standard of values.

Under the conditions assumed in the first case prices would represent the ratios between the marginal utility of, say 23.2 grains of gold, and the marginal utilities of the various commodities on the markets. Directly, the volume of the currency, composed entirely of credit instruments, would have no influence upon either the marginal utility of gold or the marginal utilities of the marketed commodities. Indirectly, its influence might be great on account of the fact that a convenient and adequate medium of exchange of some sort is essential to the present organization of industry, essential in the same sense as adequate protection of life and property, enforcement of contracts, the railroad system, and a dozen other features of our complicated industrial system. For example, if the credit system should entirely collapse, the business of exchange would temporarily stop, and, for the time being, prices would be annihilated, just as they might be if our railroad system should temporarily become useless. If the credit system should be seriously impaired, without being entirely destroyed, we would experience the price phenomena of a period of crisis, phenomena which do not follow any law, but which are the result of forced sales and of the lawless and spasmodic operations of terrorized debtors and creditors. Any necessary quantitative relation between the volume of the currency and prices, either in the period of confidence or of panic it would be impossible to establish.*

* The volume of the currency depends upon the extent of the division of labor, the size of markets, the magnitude of individual transactions, and many other circumstances as well as upon prices.

A community, which to a greater or less extent employs as a medium of exchange the commodity which serves as its standard of values, will be subject to the same kind of price fluctuations in time of crisis as was the community we have just considered. The fluctuations might not be so great or so serious, but they would be the same in kind, and would be produced by the same causes, and would be just as lawless in their operations. The connection between the volume of the currency and these fluctuations would be just as slight. In ordinary times, however, in this community the level of prices would be lower than in the first on account of the withdrawal of a quantity of gold from its ordinary uses in order to pass from hand to hand in exchange transactions. The extent to which such withdrawals would raise the marginal utility of gold and thus depress the level of prices would depend upon a variety of circumstances, namely, upon all those forces, partly subjective and partly objective, which at any particular time determine the state of the marginal need for gold. Inasmuch as these forces may vary in intensity, and be combined in different ways, it follows that the withdrawal of a given amount of gold at one time might not produce the same effect upon its marginal utility as it would at another time. For example, if fashion should suddenly turn against the use of gold plate and ornaments at the same time that additional quantities of this metal were being coined for currency purposes, the one force might offset the other, and since the marginal utility of gold would remain unchanged, the general level of prices would not be affected in the slightest degree. For the same reasons the level of prices might remain unchanged, if an increased need for gold for purposes of ordinary consumption were contemporaneous with the melting down of gold coins in large quantities. In like manner it would be easy to show that the marginal utility of gold, and with it the general level of prices, might fluctuate without any change having taken place in the volume of the currency or in general industrial conditions.

The conclusions at which we have arrived are not only not in harmony with the quantity theory, but in many cases are contradictory to it. According to that theory, so long as the number of exchanges and the rapidity of the circulation of money remain the same, nothing can affect the value of the unit, and with it the level of prices, except changes in the volume of the currency. Nothing can be clearer, however, than that the marginal utility of gold may and constantly does change in independence of any or all of these circumstances. If, therefore, it be true, as we have attempted to show, that as a standard of value, gold is a simple commodity, subject to precisely the same value-determining forces as other commodities, then the quantity theory is not true, and should no longer be made the basis of reasoning on monetary questions.

It is a common belief that the phenomena of irredeemable government paper constitutes an insuperable obstacle to the acceptance of the views set forth in this paper. It remains for us to show, therefore, that these phenomena may be clearly explained without recourse to the quantity theory.

To this end we must note first of all, that government paper money is always representative money. That is to say, a government note always has upon its face a statement of some sort. In this country it is usually a promise to pay to bearer a certain number of dollars. Conceivably such notes might bear upon their faces simply the figures 1 or 2, or 3, or 10, but these figures would needs be given some definite meaning before the notes would be useful for monetary purposes. The government might proclaim that "1" should mean one bushel of wheat, or one ton of hay, or one cord of wood, or one sheep, or one dollar, or any one of these things, or some combination of these things, but it could not leave the people in the dark regarding what it did mean. As a matter of fact, the figure "1" on a government note always means the unit of value whatever at the time and in the nation in question that may be. The figure "2"

means twice that unit, etc. In other words, a standard of values suitably denominated must exist in advance, and, in consequence, a level of prices be established to start with. We have already shown that without this, exchanges on a large scale could not be executed, and that a medium of exchange of any sort, let alone one of credit instruments, would be an impossibility. Experience, many times repeated in the history of modern nations, demonstrates that a trading community already in possession of a standard of values and with an established level of prices, can get on with a medium of exchange composed entirely of so-called irredeemable paper, and that, if the credit of the issuing government is first class, and if the notes are not issued in excess of the ability of the community to make profitable use of them as media of exchanges, that original level of prices may not be at all modified. If, on the contrary, the credit of the issuing government is not first class, or if the notes are issued in excess of the need for them for the purposes indicated, then the notes will depreciate, and the level of prices will rise to the extent of the depreciation. The phenomenon which is peculiar to irredeemable paper is that of depreciation, and whatever connection one might be able to discover between the volume of such paper and the extent of its depreciation, would throw no light upon the problem of that original level of prices from which all price changes due to the irredeemable currency started.

In regard to the causes of depreciation nothing need here be said except that the quantity theory is inadequate to account for them. The credit of the issuing government, the state of the public mind regarding the propriety of the issue, and the convenience of the business world are quite as potent as the quantity of the issues.

In closing it may not be out of place to indicate briefly the bearing of the present discussion upon the question of bimetallism. From the standpoint of the quantity theorists the chief issues of the present controversy are two: Firstly,

would national or international free coinage of silver at a fixed ratio permanently increase the volume of our currency, or at any rate, prevent further contraction; secondly, granted that it would have the former result, how would the consequent (according to the quantity theory) rise in prices affect debtors and creditors, farmers and laborers, professional men and other classes? If the views set forth in this paper are correct, the critical points of the controversy are the following: Firstly, would national or international free coinage at a fixed ratio change the standard of values of this country or of the world? If it would, then prices would fall in the degree that the value of $412\frac{1}{2}$ grains of standard silver (supposing the ratio were 16 to 1) should prove to be less than that of 23.2 grains of gold, and this would happen whether the volume of currency remained stationary or were temporarily or permanently increased or diminished. Secondly, in case the standard of value were not changed, to what extent would silver be substituted for gold in the currency of this country or of the world, and to what extent would the marginal utility of gold be lowered by the quantity thus withdrawn from circulation and thrown upon the bullion market? The volume of the currency in this case as in the preceding, would be a matter of minor importance. If all the gold should be driven out of circulation, prices would probably rise considerably, while the volume of the currency might remain the same as before, or be increased or decreased. If only a part of the gold currency should be displaced, prices would rise in a less degree, while the volume of the currency, as in the other cases, would depend upon other circumstances and conditions. The truth is that the level of prices and the volume of the currency are not determined by the same influences, and it is largely a matter of coincidence if they chance to vary in reference to each other in the way indicated by the quantity theory.

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